

IN THE CLAIMS:

1. (Original.) A method for inhibiting or controlling inorganic scale formations in a subterranean formation or in a wellbore, comprising pumping downhole a copolymer comprising:

quaternary ammonium salt; and

an acrylamide unit

wherein the inorganic scale formations are zinc sulfide or iron sulfide scale formations.

2. (Previously presented.) The method of Claim 1, wherein the quaternary ammonium salt is selected from the group consisting of dialkyldiallylammonium salt, polyvinyl benzyl trialkyl ammonium salts, salts of polyepichlorohydrin quaternized with trialkyl amine, polymethacrylamidopropyltrialkyl ammonium salts, polymethacryloyloxyethyltrialkyl ammonium salts, and polymethacryloyloxyethyl dialkyl hydroxyalkyl ammonium salt.

3. (Original.) The method of Claim 2, wherein the quaternary ammonium salt is a dialkyldiallylammonium salt.

4. (Original.) The method of Claim 3, wherein the dialkyldiallylammonium salt is a dimethyldiallylammonium salt.

5. (Original.) The method of Claim 4, wherein the dimethyldiallylammonium salt is dimethyldiallylammonium chloride.

6. (Original.) The method of Claim 2, wherein the quaternary ammonium salt is a polyvinyl benzyl trialkyl ammonium salt.

7. (Original.) The method of Claim 6, wherein the polyvinyl benzyl trialkyl ammonium salt is polyvinyl benzyl trimethyl ammonium salt.

8. (Previously presented.) The method of Claim 1, wherein the acrylamide unit is selected from the group consisting of acrylamide, (meth)acrylamide, diacetone acrylamide or N-methylolacrylamide.

9. (Original.) The method of Claim 8, wherein the acrylamide unit is acrylamide.

10. (Original.) The method of Claim 5, wherein the acrylamide unit is acrylamide.

11. (Original.) The method of Claim 1, wherein the copolymer is pumped downhole as a component of a carrier fluid.

12. (Original.) The method of Claim 1, wherein the copolymer is pumped downhole as part of a brine.

13. (Original.) The method of Claim 12, wherein the brine contains calcium bromide, zinc bromide, calcium chloride or a combination thereof or sodium bromide.

14. (Original.) The method of Claim 1, wherein the copolymer is pumped downhole as a component of a fracturing fluid.

15. (Original.) The method of Claim 1, wherein the copolymer is pumped downhole as a component of an acidizing fluid.

16. (Cancelled.)

17. (Currently amended.) ~~The method of Claim 1, A method for inhibiting or controlling inorganic scale formations in a subterranean formation or in a wellbore, comprising pumping downhole a copolymer comprising:~~

quaternary ammonium salt; and

an acrylamide unit.

wherein the weight average molecular weight of the copolymer is between from about 500,000 to about 5,000,000.

18. (Original.) The method of Claim 4, wherein the molar ratio of acrylamide unit:diallyldimethylammonium salt is between from about 1:5 to about 5:1.

19. (Original.) The method of Claim 18, wherein the molar ratio of acrylamide unit:diallyldimethylammonium salt is from about 1:1 to about 3:1.

20. (Original.) The method of Claim 1, wherein the copolymer further comprises an acrylic acid unit.

21. (Original.) The method of Claim 20, wherein the acrylic acid unit is acrylic acid, (meth)acrylic acid or a salt thereof.

22. (Cancelled.)

23. (Currently amended.) ~~The method of Claim 1, A method for inhibiting or controlling inorganic scale formations in a subterranean formation or in a wellbore, comprising pumping downhole a copolymer comprising:~~

quaternary ammonium salt; and

an acrylamide unit,

wherein the copolymer is a block or random copolymer.

24. (Original.) The method of Claim 23, wherein the copolymer is a block copolymer composed of blocks of polyacrylamide and polydiallyldimethylammonium salt and, optionally, blocks of polyacrylic acid or a sodium salt thereof.

25. (Original.) The method of Claim 23, wherein the copolymer is a random copolymer composed of units of acrylamide and diallyldimethylammonium salt and, optionally, acrylic acid or a sodium salt thereof.

26. (Cancelled.)

27. (Cancelled.)

28. (Currently amended.) The method of Claim ~~27~~ 17, wherein the copolymer is pumped downhole as a component of a carrier fluid.

29. (Currently amended.) The method of Claim ~~27~~ 17, wherein the copolymer is pumped downhole as a component of a brine.

30. (Currently amended.) The method of Claim ~~27~~ 17, wherein the copolymer is pumped downhole as a component of a fracturing fluid.

31. (Currently amended.) The method of Claim ~~27~~ 17, wherein the copolymer is pumped downhole as a component of an acidizing fluid.

32. (Currently amended.) The method of Claim ~~27~~ 17, wherein the copolymer is soluble in a brine having a density greater than or equal to 14.0 lb/gal.

33. (Cancelled.)

34. (Cancelled.)

35. (Currently amended.) The method of Claim ~~33~~ 23, wherein the copolymer is a terpolymer of acrylamide, diallyldimethylammonium salt and acrylic acid or a salt thereof and further wherein the weight ratio of acrylamide:diallyldimethylammonium salt:acrylic acid is about 1:1:1.

36. - 44. (Cancelled.)

45. (Cancelled.)

46. (Currently amended.) The method of Claim 45 17, wherein the quaternary ammonium salt is selected from the group consisting of a polyvinyl benzyl trialkyl ammonium salt and a salt of polyepichlorohydrin quaternized with trialkyl amine.

47. (Cancelled.)

48. (Cancelled.)

49. (Currently amended.) The method of Claim 45 17, wherein the quaternary ammonium salt is selected from the group consisting of polyvinyl benzyl trimethyl ammonium salts, salts of polyepichlorohydrin quaternized with trimethyl amine, polymethacrylamidopropyltrimethyl ammonium salts, polymethacryloyloxyethyltrimethyl ammonium salts and polymethacryloyloxyethyl dimethyl hydroxyethyl ammonium salts.

50. (Cancelled.)

51. (Cancelled.)

52. (Cancelled.)

53. (Currently amended.) The method of Claim 45 23, wherein the copolymer is pumped downhole as a component of a carrier fluid or brine.